P.M. Advani

Braille what it is and how it has been used with particular reference to a uniform braille code for India.

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BRAILLE

WHAT IT IS AND HOW IT HAS BEEN USED

WITH PARTICULAR REFERENCE
TO A
UNIFORM BRAILLE CODE FOR INDIA

BY
P. M. ADVANI, M.A., B.Sc.

1948

With Compliments of the Author

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FOREWORD

THE idea of writing this paper occurred to me while I was attending a Conference of the Blind held recently in Bombay. I felt that something had to be done to remove, from the minds of workers for blind-welfare in India, the belief that Braille signs had acquired fixed sound values by their use in different parts of the world. The mere fact, that Braille signs are used for alphabets and most of the alphabets of the world are non-phonetic, should be enough to show that they could not acquire fixed sound values. But evidently it had not been enough. I felt that a more picturesque presentation of facts was called for and so I started studying Braille codes and prepared Chart II printed on pages 7-13 of this paper.

Some good workers in the field of Blind-welfare, who are themselves blind, hold this belief and have vigorously propagated it. It has therefore become necessary to quote their published statements and show that they do not fit in with facts.

It is now admitted on all hands that a Uniform Braille Code for India is necessary for the progress of the education of the blind in the country. Unfortunately for those, who hold the above belief, every effort made to produce a Uniform Code took in consideration the needs of Indian languages and adapted Braille to such needs, as had been done in other countries. The Central Advisory Board of Education had to consider the matter and called experts from the Indian provinces to advise it on the subject and these in 1941 laid down the fundamental principles on which such a code should be based. That all, except one, agreed on these principles was a great achievement, and now we have a Government sponsored Uniform Code for India.

But prejudices die hard and this presentation of facts, it is hoped, may help to clear some of the mist they have produced.

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BRAILLE

WHAT IT IS AND HOW IT HAS BEEN USED

WITH PARTICULAR REFERENCE TO A UNIFORM BRAILLE CODE FOR INDIA

1. What is Braille?

Braille is a scheme of embossed writing for the blind. It was invented by Louis Braille, a blind Frenchman in 1829. It consists of 63 combinations of 6 points arranged as shown at the end of this line. The Braille cell thus consists of two columns of three dots each or of three rows of two dots each. The dots are numbered thus: 1, 2, 3 in the first or back column and 4, 5, 6 in the second or front column. Dots 1 and 4 form the top row, 2 and 5 the middle row and 3 and 6 the bottom row.

1●●4
2●●5
3●●6

The points are embossed with a blunt awl on thick paper with the help of a metal guide. The blind person writes from right to left, turns the paper over and reads from left to right. He experiences no difficulty by this change as he always moves forwards.

2. The Seven-Line arrangement

Braille arranged the 63 signs in seven lines on a scheme of vertical symmetry. He took the three combinations of the back column dots 1 and 2, namely: ⠁ ⠃ ⠂ and three similar combinations of the front dots 4 and 5, and obtained nine more signs by combining each of the latter with each of the former one by one. This gave the fifteen possible combinations of the four upper dots, thus:

⠁	⠃	⠂	⠈	⠘	⠐	⠉	⠙	⠑	⠋	⠛	⠓	⠊	⠚	⠒
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Of these he rejected 3 and 15 which are lower signs *i.e.*, **do not** use the top row, and 4, 5, 6 which are front signs *i.e.*, do not use the back column. The remaining ten signs in the order in which they were left in the above arrangement formed his first line.

The second line was obtained from the first by adding dot 3 to each of its signs, the third by adding dots 3 and 6 to each sign and the fourth by adding dot 6 only. The fifth line was the same as the first but was formed out of the two lower rows of dots. The sixth line was obtained by combinations of dot 3 and the front column dots not already used in the fifth line and the seventh line consisted of seven combinations of the three front column dots. This arrangement makes it very easy to remember the signs and when the first line has been learnt the others follow as a matter of course.

3. The French Braille

Having arranged his signs in a scheme of seven lines, Braille set about to use them. He assigned the first 25 signs to the letters of the French alphabet, in which w does not occur. He then assigned signs 26-39 to French accented vowels and the sign 40 to w, which occurs in foreign words, signs 41-50 to punctuations and the signs of the 6th and 7th lines to other necessary language signs. It took a little over 20 years before French people adopted the Braille alphabet, but once it had been accepted progress of the education of the blind in France became rapid.

A scheme of reading and writing must provide also for writing figures, for mathematical signs, for musical notation etc. Braille is now used for all these purposes. The first 10 signs are used for the figures, 1, 2, 3, ... 0 and in order that their use for figures may be distinguished from their use as letters of the alphabet, a particular sign, called the **numerical sign** is placed before them when used for numbers. The vertical symmetry of the first five lines facilitates the use of these signs for different octaves in Music. Thus while there is nothing sacrosant about the 7-line arrangement, it has by its use for various purposes come to acquire an international status.

4. The English Braille

The English Braille drawn up by Dr. Armitage and his colleagues accepted the 7-line arrangement of Braille and his assignment of the 26 letters of the Roman alphabet even though w had been moved out of its right place in the alphabet. It accepted the system of numerals and the numeral sign, but as it had no use for the French accented vowels etc. the English code makes use of 27 out of the 37 signs left after providing for the alphabet, for combinations of 2 or more letters of the alphabet which occur frequently in English spelling. Two such combinations en and in, because they are derived from e and i, are given similar signs to those for these letters, and as they often occur at the end of words, there would be confusion if the same signs are used for the question mark and the asterisk as in French. So in the matter of these two marks English, to suit its convenience, chose to differ from the international arrangement of punctuations copied by all European languages from French. Differences also occur in the use of signs in the seventh line and those used for mathematical symbols.

Arithmetical symbols are used in the same form among the sighted all over the world and one would expect that the Braille signs assigned to them would be the same in all countries, yet those who devised the English Braille chose to differ from French in this particular also. Here are 8 signs for some of the simple arithmetical signs for comparison, between the original French and English.

Arithmetical signs	+	−	×	/	=	>	<	√
French Braille	-- ●● ●-	-- ●● --	-- ●- ●●	-- ●● -●	-- ●● ●●	-● -● ●-	●- ●- -●	-● ●- -●
English Braille	-- ●- -●	-- -● ●-	●- -- -●	-● -- ●-	-- -- ●● ●● -- --	-- ●● ●● -- -- --	-- -- ●● -- -- ●●	-● -● ●-

From what has been said above about the seven line arrangement of Braille and the assignment of the letters of the alphabet to it, it is a misconception to believe that " English Braille is scientifically devised and assigns the simplest signs to the most frequently occurring letters of the alphabet." A careful study of frequency of use placed the letters of the alphabet in the following order : e, t, a, r, o, i, s etc. A code called " The American Braille " was developed in the U.S.A. on the principle of giving the simplest signs to the most frequent letters and was in use for a number of years.

Another scheme, known as the New York Point was also worked out in the U.S.A. In this there were only two rows of dots, while each row could consist of any number of dots, generally upto 4. This scheme also worked on the principle of the simplest signs for the most frequently used letters and was in use in U.S.A. for a long time.

A Commission on Uniform Type for the Blind was appointed in 1912 to arrive at Uniformity in the type used by the blind in America and in 1917 they decided to adopt a revised Braille, grade one and a half, almost similar to the code used in England, except that in ordinary books for the blind they did not use as many contractions as were used in England, as is implied in the name Grade one and a half as compared with the English Grade two.

The giving up of the New York point was a triumph of Braille over any other system and the giving up of the American Braille was a triumph for the 7-line arrangement of Braille, which had become an international feature of it.

In 1931, representatives from both England and the U.S.A. met together and worked out a Standard English Braille which is now used in both countries. Chart I give the seven line arrangement as it is used for French and for English, so that a comparison can be made between the two.

5. Other European Braille Codes

Each of the other European languages followed a course, that suited it best, as English had done. Those which used the Roman alphabet, used the same signs for the 26 letters of the alphabet as were used in French, while for the rest they followed their own individual needs. Beyond uniformity in this respect, and in the matter of figures, punctuations and other language signs, in which they followed the original French model, there appears no principle of uniformity among these codes.

CHART I

1st Line : Braille—	⠁	⠃	⠉	⠙	⠑	⠋	⠛	⠓	⠊	⠚
French—	a	b	c	d	e	f	g	h	i	j
English—	a	b	c	d	e	f	g	h	i	j
Numerals—	1	2	3	4	5	6	7	8	9	0
2nd Line : Braille—	⠅	⠇	⠍	⠝	⠕	⠏	⠟	⠗	⠎	⠞
French—	k	l	m	n	o	p	q	r	s	t
English—	k	l	m	n	o	p	q	r	s	t
3rd Line : Braille—	⠥	⠧	⠭	⠽	⠵	⠯	⠿	⠷	⠮	⠾
French—	u	v	x	y	z	ç	é	à	è	ù
English—	u	v	x	y	z	and	for	of	the	with
4th Line : Braille—	⠡	⠣	⠩	⠹	⠱	⠫	⠻	⠳	⠪	⠺
French—	â	ê	î	ô	û	ë	ï	ü	œ	w
English—	ch	gh	sh	th	wh	ed	er	ou	ow	w
5th Line : Braille—	⠂	⠆	⠒	⠲	⠢	⠖	⠶	⠦	⠔	⠴
French—	,	;	:	.	?	!	( )	“	*	”
English—	ea	bb,be	con cc	dis	en dd	ff	gg	”	in	
also—		;	:	.		!	( )	?		”
6th Line : Braille—	⠌	⠬	⠼	⠜	⠄	⠤				
French—	ì	ò		æ						
also—			figure sign	poetry sign	apostrophe	Hyphen				
English—	st	ing	ble	ar	’	-				
also—	fraction sign		figure sign	poetry sign	apostrophe	hyphen				
7th Line : Braille—	⠈	⠘	⠸	⠐	⠨	⠰	⠠			
French—			Italic sign		Capital					
English—	accent sign				Italic or decimal sign	letter sign	Capital sign			

Greek and Russian have alphabets different from the Roman and here while they have followed the 7-line scheme, they have not kept to the order of their own alphabets, but tried to give similar values to the signs used for the Roman alphabet. But the effort has not carried them very far, and the uniformity with the languages which use the Roman alphabet is even smaller than in these languages themselves.

None of the European alphabets is phonetic in the sense in which Indian alphabets are phonetic, namely, each letter has one and only one sound value attached to it and each sound is represented by one and only one letter of the alphabet. Under the circumstances, a principle like same sign—same sound can never apply to European alphabets, so long as Braille signs represent letters of the alphabets. This is clearly shown in chart II, which gives 53 signs, in the order in which they occur in the 7-line arrangement, with the letters of 6 European alphabets assigned to them, together with their various sound values. The chart shows clearly that each Braille sign has on the average 3.6 sound values attached to it in English (which is the most non-phonetic of these languages), and 4.8 sound values attached to each if the other five languages are also taken into account. It also shows that even the formal symmetry of same sign-same letter of the alphabet, which applies to languages using the Roman alphabet, disappears beyond the limit of the 26 letters of this alphabet. The combination ch is used in most European languages yet the Braille sign attached to this diagraph in English is No. 31, in German it is No. 34, in Polish No. 28 and in others it is written as C and H.

Other European Codes examined, the Dutch, the Norwegian, the Polish, the Hungarian, the Serbian, and the Roumanian relate the same story. They could not be included in the chart without complicating it too much.

CHART II

Braille Signs

and their phonetic values in English and five other languages

In this table, + indicates that the Braille sign in that language has a sound value similar to that of English as indicated in the same line ;

— indicates that the particular sign does not occur in the Braille chart of the language ;

? indicates that while the sign does occur in the Braille chart, its equivalent letter or sound value cannot be determined.

Phonetic values of Braille signs are indicated by the sounds produced by letters, printed in Italics, in common English words.

No.	Braille	English	French	German	Italian	Greek	Russian
1.	⠁	a	a	a	a	al*f*a	ah
		*a*bout					+
		*a*sk					
		p*a*rt		+	+	+	+
		or*a*nge					
		*a*ny					
		*a*le					
		*a*dd	+	+			
		*a*lter					
2.	⠃	b	b	b	b	veeta	beh
		*b*ed	+	+	+		+
		de*b*t					
						*v*i*v*id	
3.	⠉	c	c	c	c	—	tseh
		*c*ell	+		+		
		*c*all	+	+	+		
		vermi*c*elli					
		spe*c*ial					
							i*ts*

No.	Braille	English	French	German	Italian	Greek	Russian
4.	⠙	d	d	d	d	thelta	deh
		*d*eal	+	+	+		+
		stopp*ed*		+			+
		sol*d*ier					
		ju*d*gement					
						*th*ey	
5.	⠑	e	e	e	e	epseelon	yeh
		*e*nd		+	+	+	+
		*e*rr	+				
		cl*e*rk					
		*E*ngland					
		*e*ve					
		op*e*n					
		right*e*ous					
							*y*et
							*y*on
6.	⠋	f	f	f	f	fee	eff
		*f*at	+	+	+	+	+
		o*f*					
7.	⠛	g	g	g	g	gama	gheh
		*g*ate	+	+	+	+	+
		*g*em			+		
		rou*g*e					
		phle*g*m					
			mea*s*ure	mea*s*ure		*y*ellow	
				lo*ch*			loch*
						a*ng*le	loo*k*
							bra*v*o
8.	⠓	h	h	h	h	Sign	khah
		*h*and	+	+		rough	
		*h*eir	+	+	+	breathing	
							lo*ch*
9.	⠊	i	i	i	i	yota	ee
		f*i*n		+	+		
		mach*i*ne	+		+	+	+
		b*i*rd					
		f*i*le					
		mill*i*on			+		+
							*y*east
10.	⠚	j	j	j	j	Sign	zheh
		*j*oy				Diaeresis	
		hullelu*j*ah		+	+		
			mea*s*ure	mea*s*ure			mea*s*ure

* *ch* in loch in this chart is to be pronounced as Kh as in Scottish.

No.	Braille	English	French	German	Italian	Greek	Russian
11.	⠅	k	k	k	k	kappa	kah
		*k*ite	+	+	+	+	+
		spun*k*					+
		*k*now					
						*gh*oul	
12.	⠇	l	l	l	l	lamtha	e
		ha*l*t	+	+	+	+	+
		co*l*onel					
		ha*l*f					
13.	⠍	m	m	m	m	mee	em
		*m*other	+	+	+	+	+
		co*m*pter					
		*m*nemonics					
14.	⠝	n	n	n	n	nee	en
		*n*oon	+	+	+	+	+
		ba*n*ff					
15.	⠕	o	o	o	o	omeecron	o
		s*o*n					+
		*o*rb	+	+	+		+
		w*o*men					
		w*o*lf					
		to*m*ato			+		
		*o*ld	+	+	+	+	
		aff*o*rd					
16.	⠏	p	p	p	p	pee	peh
		*p*ole	+	+	+	+	+
		*ps*alm					
		*ph*ilology					
		ne*ph*ew					
17.	⠟	q	q	q	q	—	chah
		*qu*ake	+	+	+		
		*qu*ay					
							*ch*urch
							fre*sh*
18.	⠗	r	r	r	r	ro	er
		*r*ope		+	+	+	
			*rh*etoric				sti*rr*er
19.	⠎	s	s	s	s	seegma	ess
		*s*ilver	+	+	+	+	+
		ro*s*e	+	+	+	+	+
		*s*ugar					
		mea*s*ure					
		vision					

No.	Braille	English	French	German	Italian	Greek	Russian
20.	⠞	t	t	t	t	ta	teh
		*t*ame	+	+	+	+	+
		ac*t*ion					
		na*t*ure					
		bris*t*le					
				i*ts*		*d*ope	*d*ope
21.	⠥	u	u	u	u	eepseelon	oo
		p*u*ll		+	+		
		r*u*le		+	+		+
		b*u*rn					
		b*u*sy					
		b*u*ry					
		*u*se	+				
		q*u*aff					
		g*u*ard					
						fr*ee*	
22.	⠧	v	v	v	v	—	?
		*v*ain	+		+		
				*f*ond			
23.	⠭	x	x	x	x	xee	shcha
		e*x*cept	+	+	+	+	
		e*x*ist					
		*x*enon	+				
							shch
24.	⠽	y	y	y	y	psee	?
		*y*ellow					
		p*y*ramid					
		beaut*y*	+	+	+		
		fl*y*				la*ps*ed	
25.	⠵	z	z	z	z	zeta	zeh
		*z*eal	+			+	+
		a*z*ure	+				
		rende*z*vous	+				
				nu*ts*	nu*ts*		cess
26.	⠯	and	ç	—	—	chee	ee
		h*and*	les*s*on			lo*ch*	bo*y*
27.	⠿	for	é	—	—	—	—
		*for*m	opera				
28.	⠷	of	à	—	à	—	Sign
		of s*of*t	*a*sk		*a*sk		separates letters

No.	Braille	English	French	German	Italian	Greek	Russian
29.	⠮	the *the*m *the*rmos	è met	ss me*ss*	è met	—	yery p*y*gmy
30.	⠾	with *with*in *with*	ù	st *sht*	ù	—	yer palatalises
31.	⠡	ch *ch*art *ch*ord *ch*aise lo*ch*	â	au *town*	—	—	?
32.	⠣	gh *gh*ost lau*gh* hou*gh* thou*gh*	ê	eu b*oy*	—	b*e*d	—
33.	⠹	sh *sh*ape dis*h*onour dis*h*armony	î	ei m*i*le	—	—	—
34.	⠹	th *th*at *th*ink *Th*omas pot*h*ouse	ô	ch lo*ch* *ch*ord *ch*aise	—	theeta *th*ink	—
35.	⠱	wh *wh*ale *wh*ole	û	sch *sh*ape	—	eeta fr*ee*	sha *sh*ore
36.	⠫	ed b*ed* fill*ed* dri*ed* stopp*ed* *ed*ucate	ë	—	—	—	yah hullelu*jah* *yet* m*e*t
37.	⠻	er *er*ect *err* *er*ror	ï	—	—	—	—

No.	Braille	English	French	German	Italian	Greek	Russian
38.	⠳	ou	ü	ü	—	ou	yoo
		jo*u*rnal bo*u*ght co*u*gh wo*u*ld fo*u*r thro*u*gh		*u*se		mood	*yu*le
39.	⠪	ow	oe	ö	—	oi	eh
		n*ow* kn*ow* bell*ow*s kn*ow*ledge	+	herd		need	*e*nd
40.	⠺	w	w	w	w	omega	veh
		*w*ant *w*rite	+	+	+	rope	*v*ile a*f*ter
41.	⠂	ea	—	—	—	—	—
		*ea*ch cr*ea*te ar*ea* r*ea*ct gr*ea*t w*ea*r h*ea*rt *ea*rl					
42.	⠆	be or bb	—	—	—	—	—
		*be*ll ho*bb*y					
43.	⠒	con or cc	—	—	—	—	—
		*con*cord toba*cc*o a*cc*ede a*cc*ord					
44.	⠲	dis or dd	—	—	—	—	—
		*dis*cord *dis*order hi*dd*en hea*dd*ress					
45.	⠢	en	—	—	—	—	—
		*en*able *en*camp op*en*					

No.	Braille	English	French	German	Italian	Greek	Russian
46.	⠖	ff ru*ff*le	—	—	—	—	—
47.	⠶	gg ru*gg*ed	—	—	—	—	—
49.	⠔	in *in*spire pa*in* comb*ine* comb*in*ation	—	—	—	sign ?	—
51.	⠌	st hi*st*ory ca*st*le	ì	äu bo*y*	ì f*i*n	—	—
52.	⠬	ing see*ing* *ing*ot *ing*est	ò	ie ach*ie*ve	ò orb	—	—
53.	⠼	ble a*ble* *ble*nd	—	—	—	—	—
54.	⠜	ar *Ar*ab *ar*ch *ar*ea *ar*ise	æ m*a*ke	ä *a*ir	—	—	 ?
56.	⠤	com *com*e *com*edy *com*pter	—	—	—	—	—

Notes: The table above gives only 53 out of 63 of Braille signs, because 10 signs are not used for letters or combinations of letters in English Braille.

French sounds, particularly those of vowels as modified by the three kinds of accent, the acute, the grave and the circumflex are very difficult to explain by English pronunciations and therefore no attempt has been made to do so. The Diaeresis (••) is used for different purposes in French, German and Greek.

6. Braille and the non-European Languages

Braille has been used for languages other than the European. Leaving Indian languages out, because the Braille Codes for them form the main theme of this paper and will be examined later, only five codes were available for study, namely, the Arabic as used in Egypt, the Union Mandarin, the Kien-Ning and the Cantonese from China and the Korean.

The Egyptian Code adopts the seven line arrangement, but is written from left to right and read from right to left, to show the difference in the direction of reading and writing between the semitic and the Indo-European languages. The letters of the Arabic alphabet are then assigned to the signs in their natural order, followed by the vowel marks, etc.

The Far Eastern languages are syllabic not alphabetic and the adaptation of Braille to these languages has necessarily to be different. The table below gives a comparative statement of the sound values attached to the 10 signs of Braille's first line in English and four of these languages. Korean uses 2-cell signs for its syllabary, the first of which refers to what we should call the consonant part and this is given in the table, although it is realised that that could not exactly represent the real state of affairs.

English :	a	b	c	d	e	f	g	h	i	j
Mandarin Union :	dj	ch	l	d	s	t	r	dz	eh	ts
Kien-Ning :										
Syllables-		k	l	ang	s	eng	ua		n	
Tone-Marks-	⌣		v		ˋ				ˊ	
Cantonese :										
Initial-			ch			f	ng	h		y
Final-	Tm *	a	aang	sz	e	ot	ang	ei	i	ui
Korean :										
simple-	k,g	p,b	n,l		m		ng		t,d	
aspirates-				p		k		t		h

7. Some unwarranted statements

The purpose of the above study was to place facts before those connected with the education of the blind, so that they understand

* Tm refers to a tone-mark named sheûng sheung.

what Braille is and how it is used in the world today, and are not easily misguided by dogmatic statements made by people, who are highly prejudiced in this matter, however good they may be in others. Here are some of such statements :

> " . . . Braille alphabet has been adopted by different countries, not only for various European languages, but it has also been adapted by countries and peoples with languages widely differing from the European languages, like Turkish, Egyptian, Chinese, Japanese, etc. Thus the Braille signs are not merely a system of dot signs to be used as a script for the blind, but they are signs which by becoming the alphabets of numerous countries of the world, have acquired, like the letters of the Roman alphabet, (1) a certain fixed meaning and value as letters of the alphabet and (2) consequently, certain sound values in the whole world of the blind."
>
> Mr. R. M. Alpaiwalla, B.A., LL.B., Bar-at-Law, in his " The Indian Blind and a Script."

It is quite clear from the above study that the letters of the Roman alphabet and still more the Braille signs assigned to them do not stand for any fixed sound values, even where this alphabet is used ; and that, no effort has or can be made in the world use of Braille, to assign international sound values to its signs, unless all alphabets become phonetic. The reference to Egyptian and Chinese is dealt with below :

> (*b*) " Braille's Code was carried by enthusiastic workers for the blind to the far corners of the world. With few exceptions, the sounds of the new languages were represented by the already established Braille symbols for those sounds. Thus it is that an international code for common sounds has been built up. Greek, Chinese, Javanese, Japanese, Singalese have all had Braille adapted to their use on this principle."
>
> Sir Clutha Mackenzie in a memorandum dated 15-11-45 on Standard Indian Braille.

The statement is only partially true for Greek, for being a European language, with its alphabet linked with the Roman, there is some sound correspondence between the original French code and the Greek one. About Chinese and Javanese, after visiting places in the Far East, Sir Clutha, wrote as follows in "The New Beacon" for June 1947.

> "Malaya has no Braille of its own, but as Chinese (mostly Cantonese) are the most numerous group among the blind, Cantonese Braille (of the same international system) is taught in the only school. As far as I could learn, no Braille has yet been designed for the Malaya language as such. There is certainly none in use in Malaya or Java. Of the half-dozen or so codes in China, the two principal ones are Union Mandarin (Central, West and North China) and Cantonese (South China). Except for few sounds, M, N and P, for example, Mandarin does not use the international symbols, though it was hard to discover any practical reason why it should not do so."

So Javanese Braille does not exist, and Mandarin does not use the international symbols, while Cantonese alone according to Sir Clutha has been the faithful one. The reader can judge for himself how far even Cantonese has been able to follow the international principle, as defined by Sir Clutha, by studying its use of the first 10 Braille signs as shown on page 14.

Japanese and Singalese and Turkish Codes were not available for this study so it is not possible either to confirm or contradict what Sir Clutha and Mr. Alpaiwalle say about them.

In an article in the American "Outlook for the Blind" for November 1946, Sir Clutha tells the world, that the "importance of this same sound, same sign principle in International Braille may escape English readers, who are notoriously lazy in learning a second language, . . .", He himself seems to share the disability and that explains his having discovered the "same sign, same sound" principle where it does not exist.

8. The Indian Braille Codes

India is a large country and comprises of a number of language areas. The languages of India belong to two different groups, the Dravidian and the Indo-Aryan. The latter use two classes of alphabets, those derived from Samskrit and those derived from Arabic. By association with each other for thousands of years, the Dravidian and Indo-Aryan alphabets have greatly influenced each other and assumed common characteristics. These are:

(*a*) A Scientific arrangement based on phonetics. The vowels come first and are grouped in pairs, short and long. The consonants again are grouped in fives according to the organ of their origin in speech. This arrangement is peculiar to these alphabets and marks them out as the best planned in the world.

(*b*) The alphabets are phonetic, so that each letter has only one sound value and each sound is represented by the same letter under all circumstances.

The Perso-Arabic alphabets do not share these characteristics, but being used for languages which are Indo-Aryan, they contain the same series of sounds with the addition of a few due to words imported from Arabic and Persian. These alphabets have also become unphonetic in respect of some of the new letters imported into them, because Indians like the Persians have in some cases given common sounds to two or more letters of the Arabic alphabet.

Another fact about India is that almost every one is bi-lingual and many speak and can read and write more than two Indian languages. It therefore becomes absurd in India to have different sound values attached to different signs in Indian Braille Codes.

But this is exactly what happened. When a new school was started, a new Braille code had to be drawn up to suit the language of the area in which the school was situated. Such codes were in most cases drawn up by missionaries and in one case, that of the Victoria Memorial School in Bombay, by Dr. Nilkanthrai, who became blind in adult age. These authors of Braille Codes learnt English

Braille first and adapted it, as best as they could, to the language they had to deal with. The resulting confusion is best illustrated by a table which gives the Braille signs, represented by their English equivalents, assigned to the 10 principle vowels of Indian alphabets in five of this class of codes, aptly described as "Expedient Codes" by Dr. R. M. Halder in his book "The Visually Handicapped in India".

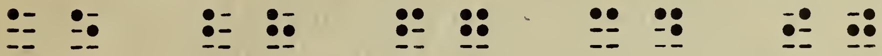
The vowels :	अ	आ	इ	ई	उ	ऊ	ए	ऐ	ओ	औ
Nilkanthrai Braille	a	and	be	i	u	ff	e	er	o	ow
Shirreff Braille	a	ch	i	ow	m	x	e	in	o	en
Kananda Braille	a	c	i	in	u	sh	e	er	ow	ou
Tamil Braille	a	b	c	cc	u	ou	wh	i	x	ow
Sir Clutha Braille	a	ar	i	e	u	ou	c	x	o	ow

All the five codes agree on the first vowel and make it equivalent to English a, yet if we turn to Chart II above, we find that while English and Russian alone attach that sound value to the first Braille sign, English and four others, *i.e.* five out of the six languages charted, attach to the sign the long vowel आ and if we would be international this sign should be assigned, to the long vowel.

9. Uniform Codes upto 1941

(*a*) The difficulty produced by different codes for different Indian alphabets was keenly felt by the British and Foreign Bible Society, who are upto this day the largest publishers of Braille literature in Indian languages, and in 1902 they published a pamphlet putting forth for suggestions and criticism a code drawn up by Messrs. Knowles and Garthwaite under the name "Oriental Braille" which covered both the Indian and Semitic languages in Asia. This code takes due note of the phonetic arrangement of Indian alphabets and shows the relation between the letters of the alphabet by simple relation between the signs assigned to them and deserved better reception than it actually had. A slightly modified form of it devised by the late Mr. L. B. Shah who had worked on the code with Mr. Garthwaite is known as Shah Braille and is used in Bengal and Assam. The oriental Braille is used in the Dadar School for the Blind in Bombay for Marathi and in a few other places.

(*b*) The Sindhi Braille Committee while working out a code, for a school to be started in Karachi, also came to the conclusion that a uniform Indian Braille Code was necessary and that it should take account of the phonetic symmetry of Indian alphabets. They further discovered that the 10 signs in the first line of Braille could be rearranged into five pairs on the same principle of symmetry which governed the arrangement of the first five lines of Braille and which admirably suited the phonetic symmetry of Indian alphabets, thus :



Their scheme was the theme of a paper placed before the Second Oriental Conference held in Calcutta in February 1922 and was published in the " Calcutta Review " for September and December 1922. The Code devised by them has been used at the Karachi School for the Blind since 1923.

(*c*) In 1941, when experts from the Indian provinces were being invited to advise the Central Advisory Board of Education on the question of a Uniform Braille Code, Mr. K. Bhattacharjee, Principal, Lady Noyce School for the Deaf and Dumb, New Delhi, who, when in America, had made a study of Braille and the Education of the Blind, forwarded to the Secretary of the Board, a code called " The Hindustani Uniform Braille ", which adopted the principles of the Knowles and Garthwaite Code, but greatly improved their application to Indian alphabets. His charts of Indian alphabets, to explain the use of the code were the most complete produced so far. The code was never put in print, but a few typed copies of it were supplied to members of the Uniform Braille Committee.

10. The Central Advisory Board of Education and Uniform Braille

In 1922 the meeting of the Central Advisory Board of Education gave special consideration to the education of the Blind and Deaf-Mutes and recommended Government to appoint a Committee to devise a Uniform Braille Code for Indian languages and also to establish a Braille Press in India.

But every school which had used a Braille Code devised by the founder of the school and in which a small number of books had been laboriously written by hand, regarded its code as the best and a large majority of these codes had been devised by just adapting English Braille to the Indian language, and so in 1923 a conference of the workers for the Blind and deaf was called to Bombay and advised Government not to take any hasty step and advised all future authors of Braille Code to follow the plan of the majority of existing codes.

The Question of a Uniform Code remained in abeyance and so that of the Braille Press, in spite of the fact that the National Institute for the Blind kept appealing to the Government on the two subjects. On the other hand Mr. H. D. Chhatrapati of the V. M. School for the Blind, through the Government of Bombay, advised the Central Advisory Board of Education to accept the Nilkanthrai Code as the basis of Codes for all India. In 1941, the Central Advisory Board decided to invite experts from all over the country to advise them on the subject and representatives nominated by the Provincial Governments met in Delhi in November 1941 and came to the following conclusions :

I. That . . . it is essential to adopt a Uniform Braille Code for Indian languages as a whole, each Braille sign representing as far as possible the same sound in all Indian languages.

II. That the Uniform Code proposed should be based on the following fundamental principles :

(i) As far as possible the blind should not be segregated from the sighted in the process of their education.

(ii) The original arrangement of Braille signs in seven lines as in Standard English Braille should be maintained in the code to be framed for Indian languages.

(iii) In the arrangement of alphabets in the code, the phonetic order of grouping in the Indian languages should, as far as practicable, be retained.

(iv) Phonetic relations between the letters of the alphabets, should be represented, as far as possible, within the decisions already reached, by some simple relation between the signs assigned to them.

(v) Two-cell arrangements should, as far as possible, be avoided and sounds from different languages be accommodated by assigning the same sign to different, but related sounds.

. . . .

V. That the Central Advisory Board of Education should set up a small expert committee, including linguists, who shall:

(i) work out a Uniform Braille Code in accordance with the principles recommended in this report;

(ii) serve as a Central Board of Reference to whom any specific issues that may arise during the transitional period may be submitted;

(iii) form the members of an advisory body to the Central Advisory Board of Education on the education of the blind.

(The other conclusions are omitted, because they are not relevant to the purpose of this paper.)

The above recommendations were made unanimously, except for a minutes of dissent by Mr. H. D. Chhatrapati who objected to principle II (iii) above and desired that the Uniform Code should seek the greatest possible correspondence with English in sound values assigned to Braille signs in the Indian Code and suggested thatfor that reason the Nilkanthrai Code offered the best basis for a Uniform Code.

Messrs. H. D. Chhatrapati and R. M. Alpaiwalla object most to recommendation II (iii) above, which appears to them to give too much importance to Samskrit. Indian alphabets descended from Samskrit, as well as the Dravidian alphabets, have a scientific phonetic arrangement which distinguishes them from all other alphabets of the world and Indians generally are proud of this fact rather than otherwise. The arrangement offers the best method of applying the principle, " each Braille sign should represent as far as possible the same sound in all Indian languages." Sir Clutha Mackenzie on the other hand accepts this principle in his code, but rejects principle II (ii). All these critics base their entire arguments on the **non-existant** international principle of same sign—same sound in the world use of Braille. This principle, in the nature of things, cannot exist when Braille signs are assigned to letters of non-phonetic alphabets, and as shown above does not exist.

The Central Advisory Board of Education at their 1942 meeting accepted the recommendations of the interprovincial experts and under recommendation V appointed an Expert Committee consisting of,

Sir John Sargent, Educational Adviser to the Government of India as chairman.

Dr. Abdul Haq, Secretary, Anjuman-e-Tarraqui-e-Urdu, Hind.

Dr. Suniti Kumar Chatterjee, Head of the Department of Philology, Calcutta University.

Mr. P. M. Advani, Secretary of the Sindhi Braille Committee, which drew up a Uniform Code in 1922.

Mr. K. Bhattacharjee, Author of Hindustani Uniform Braille.

It was necessary in choosing the Braillist members of the Committee to see that these gentlemen were not only acquainted with Braille, but had a good working knowledge of all Indian alphabets and the two gentlemen selected were known to combine in themselves the two necessary qualifications.

A unanimous report was produced and submitted to the Central Advisory Board of Education in 1943, who ordered that the code devised be published and sent to the various provinces and states, as well as, to the National Institute for the Blind in London, for their remarks and suggestions.

This was done in 1943 and the remarks as received were sent to the members of the Expert Committee. Sir Clutha Mackenzie was Secretary of a Joint Committee of the Central Advisory Boards of Health and Education which considered the problem of Blindness from all sides and in the report of this Joint Committee issued in 1944, on page 68, he states,

> " . . . at the final meeting of our Joint Committee on Blindness, Dr. D. M. Sen, submitted their replies, excepting those from Madras and the Central Provinces which had not been received.

> The replies expressed approval of the Code, except for minor modifications of a technical character which were under consideration by the Expert Committee. In view of the generally favourable reception of the new code by the Provinces and States, this Committee recommends its early adoption as the Uniform Braille Code for India."

The opinions from Madras and the Central Provinces were received later and were equally favourable and so after the Expert Committee had made the necessary technical additions and alterations in the code, it was adopted by the Central Advisory Board of Education in 1945.

11. Sir Clutha Mackenzie and the Uniform Braille Code

It was after this that Sir Clutha Mackenzie made the discovery that every thing had gone wrong since 1941 in the matter of the Uniform Braille Code for India. He enunciated the " same sound—same sign " principle and insisted that it should have been followed in drawing up the Uniform Code.

He had the prestige of being a member of the ruling race dominating this country, he occupied the high position of Officer on Special Duty (Blindness) with the Government of India, and was the Head of the St. Dunstan's Hostel for the Indian War Blinded. He went ahead and constituted " an informal committee " consisting of 3 Britishers and 5 blind subordinates or trainees at St. Dunstan's, 7 out of the total 8 being blind, and drew up " The Standard Indian Braille " on the basis of the so-called " International Principle " of same sign—same sound which he declared was the basis of the world use of Braille. He published this code and sent it out to all institutions of the blind, with the heads of which he had acquired high prestige as Officer on Special Duty, and succeeded in getting some of them to change their opinions and commend his code as better than the Uniform Code drawn up by the Expert Committee.

Having achieved all this, he met the members of the Expert Committee but failed to convince them of the existence of his International principle. They presented facts to support their point of view.

Chart II and details of other Codes given in this paper show that this was bound to happen.

At its 1947 meeting the Central Advisory Board of Education considered a memorandum presented by Sir Clutha Mackenzie and the report of the Expert Committee on its meeting with Sir Clutha and his colleagues and once more affirmed their approval of the Uniform Braille Code. It has now been re-published and sent out to all schools for adoption.*

12. The Uniform Braille Code and the Pallamcottah Schools

The Pallamcottah Schools for the Blind are missionary institutions and form the largest single unit for the education of the Blind in India. Rev. Cannon W. Speight was Principal of the schools for 28 years He was himself blind. In 1923 he was elected as one of the Secretaries of the Conference of the Workers for the Blind and Deaf-Mutes which asked Government to go slow, and directed that all future codes in India should be framed on the greatest uniformity of sound values assigned to Braille signs between English and Indian languages. He was a member of the 1941 committee and pressed for the adoption of the principle, but accepted the majority decision.

> When the Uniform Code was sent to him for his opinion, he wrote: "The Expert Committee has done its work conscientiously within the narrow terms of reference given to it." In spite of his personal unfavourable impression of the Code, he submitted it to a thorough test in his schools and wrote: "It was found that, on the whole, pupils learned the new alphabet with ease, although there was a very natural tendency to confuse it with the one now in use in the school. . . . The general opinion of the teachers who conducted the present tests seems to be that, if taught from the beginning, blind children would learn the new code without serious difficulty, and that ultimate achievements in reading would be quite satisfactory."

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* Copies can be had on application from the Ministry of Education, New Delhi.

Later Rev. Cannon Speight joined the "Informal Committee" appointed by Sri Clutha Mackenzie and subjected the new code drawn up to the same tests and naturally found it better.

When it was decided in 1947 to expand the Expert Committee to include some blind experts upon it, he was invited to join it, but as he was leaving India, he recommended that his successor Rev. M. C. Langton be invited in his stead. Rev. Langton is a keen student of Tamil and the Dravidian group of languages and under his guidance the Pallamcottah schools were the first to introduce the Uniform Braille Code.

13. The Problem of the Indian Braille Code

(i) The experts from the different provinces of India who were invited by the Central Advisory Board of Education to advise it on the Uniform Braille Code for India, had to lay down principles for devising a code which should be,

(*a*) Indian, *i.e.*, devised for the convenience of the Indian blind, who will come to it with only the knowledge of their own native languages as they are spoken. Adopting the plan of assigning to the Braille signs, letters of the Indian alphabets in their usual order, will make the blind child learn to read and write as far as possible on the same lines as his sighted brothers and sisters will be doing and will further make use of the scientific arrangement of Indian alphabets in which these excel all alphabets of the world ;

(*b*) International, *i.e.*, it should include as far as possible all the international features of Braille. This is achieved by adopting the 7-line arrangement as in Standard English. This arrangement has been used almost everywhere in the world now. It keeps the natural order of numbers. It also makes for internationalism in Musical notation. Indian music differs from European music in many respects, but they both divide the musical notes into octaves and are achieving a common outlook on this art. The Musical notation for the blind is based upon the 7-line arrangement and is therefore essential for this international development. Another point in which Indian languages are developing, by borrowing from the West, is by the adoption of the system of Western punctuations. These features have all been maintained in their English form in the Indian Braille.

The 7-line arrangement makes the learning of Braille very easy, and when a language gives it up, it does so out of dire necessity.

(ii) Drawing up a code was attended with many difficulties, these have all been explained in the report of the Expert Committee and the Explanatory note attached to it by Sir John Sargent, the chairman of the Committee. But when the code is actually put to use, more difficulties may arise. This was anticipated by both the planning committee of 1941 and the Expert Committee which drew up the Code. In their recommendations to the Central Advisory Board of Education, the Experts from all over India, advised that the Expert Committee to be appointed should serve as a Central Board of Reference to whom any specific issues that may arise during the transitional period may be submitted. When approving the Code in 1945, the Central Advisory Board of Education directed that any difficulties experienced in the actual use of the Code should be brought to the notice of the Expert Committee for their further consideration. It is hoped that before the Braille Press for India produces a large amount of literature for the Indian Blind in their own languages, any such difficulties will, with the co-operation of blind readers in India, be eliminated.

(iii) Will the Code drawn up on an Indian plan put any difficulties in the way of those who later want to learn English or any other European language? Most of those who met in Delhi in 1941, were using the "expedient" type of codes, that is those devised with the help of the English code on the basis of similarity of sound values assigned to Braille signs in English and Indian Codes. These experts honestly felt that the adoption of an Indian plan would produce difficulties in learning English later. But when it was realised that the plans of spelling in Indian languages and in English had nothing in common, the first being phonetic and the last outrageously otherwise, the opposition to the Indian plan was given up by all except Mr. Chhatrapati.

An important fact to be remembered in this connection is that the Calcutta Blind School has sent up the largest number of its students for higher studies, and the Dadar School for the Blind, Bombay, comes next, while the Karachi School taught English to almost every one of its students, and all these three schools used Indianised Codes.

(iv) Mr. Alpaiwalla in his " The Indian Blind and a Script " gives us two sentences in Hindi, transliterates them in Roman and then shows how these sentences when tanscribed in Braille on five different codes would be read by someone who knew only English Braille. He demonstrated that if transcribed in what might be called anglicized codes, they could be read with less distortion than when transcribed in Indianised codes. That is of course natural.

This seems to suggest that the purpose of a good Indian Braille Code should be that blind persons, who know English Braille only, may be able to read a sentence written in an Indian Braille with only a little distortion.

Sir Clutha Mackenzie seems also to think along similar lines when in Appendix (c) of his memorandum dated 15-11-45 referred to above, he writes :

> " . . . . some of the Indian sounds are represented by Standard Braille signs having totally different sound values. This necessity is regretted, but the number of signs involved is not large enough to prevent *a practised English Braille reader, after a very short period of instruction, from reading correctly, say Urdu,* or vice-versa."*

Few Indians, would accept this as the purpose which should underlie the drawing up a Braille Code for India.

* The italics do not occur in the original.

14. Conclusions

(*a*) The paper has been written with a view to emphasise facts about Braille. The reader is invited to make a careful study of charts I and II and the table comparing the use of the first 10 signs of Braille in the Far East and the short description of the Arabic Braille. Such study would reveal that there is no International " same sign—same sound " principle governing the world use of Braille and that such a principle cannot exist unless all alphabets become phonetic and there is an International agreement to establish it on some scientific basis. In the present state of things this is impossible.

(*b*) That Indian languages being phonetic and having very similar alphabets must have a Common Code. That the country is one, though divided into a number of linguistic areas, makes this easy of achievement.

(*c*) That, as has been done everywhere else, the Braille Code for India should follow the plan of the Indian alphabets and make the learning of Indian Braille as easy as possible for the Indian blind, as well as, include in it all the international features which Braille has come to acquire in other parts of the world. This has been attempted in the Uniform Braille Code for India.

(*d*) That the code is in charge of a Committee of Experts, who will, at all times, give their closest attention to any difficulties which might arise in its use and seek to improve it, where it needs improvement, in the transitional period.

May all the study and labour which have been devoted to bringing the Uniform Braille Code for India into being, serve the blind in India, is the hope with which it has been issued. The Government of India, has now a unit in the Ministry of Education, headed by Dr. R. M. Halder, M. Ed., Ph. D., the Assistant Educational Adviser (Blindness) to the Government of India, to advise and help in every effort for the progress of the education of the blind and to whom all enquiries on this subject should be addressed.

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